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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/820,328	03/29/2001	Andrzej Kilian	076518-0140	3098

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EXAMINER
LU, FRANK WEI MIN

ART UNIT	PAPER NUMBER
1634	

DATE MAILED: 02/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/820,328	KILIAN, ANDRZEJ	
	Examiner	Art Unit	
	Frank W Lu	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 November 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,11,12 and 14-22* is/are rejected.

7)☒ Claim(s) *10 and 13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *3/29/01 (original)* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. Applicant's response to the office action filed on November 20, 2002 has been entered. The claims pending in this application are claims 1-22.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1-5, 8, 11, 12, 15, 16, and 18-22 are rejected under 35 U.S.C. 102(a) as being anticipated by Vos *et al.,* (WO 00/34518, published on June 15, 2000).

Regrading claims 1-3, 5, 15, 16, and 22, genomic DNA as recited in claim 16 from each individual from the individuals of the genotyping collection was digested with a certain restriction enzyme combination and ligated with adapters and the produced DNA was called as AFLP template DNA wherein the individuals were from different varieties, lines, strains, cultivars, or races (see 1-6 paragraphs of page 26 and Figure 10). Then the AFLP template DNA was amplified (see pages 26-29) and provided a fingerprinting by gel electrophoresis as recited in step (b) of claim 1 (see first and second paragraph of page 3 and page 29). The amplified products from the AFLP template DNA were considered as the first diversity panel comprising a reproducible pattern of nucleic acid molecules as recited in claims 1, 2, and 15 since the amplified

products from the AFLP template DNA were generated from the genomic DNA of each individual from the individuals of the genotyping collection and the amplified products were reproducible. Further, the individual AFLP markers on the gel was cut out and attached to a carrier to form an array wherein many different AFLP markers were attached to the same carrier as recited in step (c) of claim 1 (see pages 30 and 31, and Figures 11 and 12). The labeled AFLP fragments generated from an amplification using APC primers were used as a probe in a hybridization to a the AFLP markers on the AFLP micro-array as recited in steps (d) and (e) of claim 1 (see lines 26-31 of page 27, and pages 28 and 29) wherein the labeled AFLP fragments generated from an amplification using APC primers was considered as a second diversity panel as recited in claims 1, 3, and 5 since the labeled AFLP fragments generated from an amplification were reproducible. The AFLP markers represented on the AFLP micro-array hybridized to the labeled probes and suggested that these AFLP markers were present in the individual selected. The presence or absence of each AFLP marker on the AFLP micro-array was assessed by scanning, detection and analysis of the array as recited in step (f) of claim 1 and claim 22.

Regarding claim 4, the first diversity panel could be generated from cDNA since Vos *et al.*, showed that the starting DNA used to generate the restriction fragments that were bound to the carrier could be from at least one cDNA (see page 7, last paragraph bridging to page 8, line 26).

Regarding claim 8, the label on AFLP fragments generated from an amplification was fluorochrome or a chemiluminescent molecule or a radioactive molecule (see lines 27-11 of page 19).

Regrading claims 11 and 12, a AFLP primer had a sequence corresponding to (ie., that could hybridize with) the adapter-sequence of the template (see page 27, lines 10-12) and a methylation sensitive enzyme such as Xho I could be used (see page 13, lines 12-15).

Regarding claim 18, the individuals were from the same species (see first paragraph of pages 26).

Regrading claims 19 and 20, the organisms of step (s) were from species selected from plant such as rice (see first paragraph of page 24).

Regarding claim 21, the addressable array was on a carrier made by glass or silicon slide (flat shape) (see page 15, lines 17-24).

Therefore, Vos *et al.,* teach all limitations recited in claims 1-5, 8, 11, 12, 15, 16, and 18-22.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vos *et al.,* (June 15, 2000).

The teachings of Vos *et al.,* have been summarized previously, *supra.* Vos *et al.,* did not specially teach to generate additional diversity panels.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have generated additional diversity panels in view of patent of Vos *et al.*. One having ordinary skill in the art has been motivated to do so because using more than one diversity panels in the method as recited in claim 1 would save time and experimental expense, and would detect multiple samples at the same time. One having ordinary skill in the art at the time the invention was made would have been a reasonable expectation of success to perform the method as recited in claim 1 using more than one diversity panels.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vos *et al.,* (June 15, 2000) in view of Schena *et al.,* (Proc. Natl. Acad. Sci. USA, 93, 10614-10619, 1996).

The teachings of Vos *et al.,* have been summarized previously, *supra.* Vos *et al.,* teach to hybridize more than one second diversity panels (a mixture of 5 AFLP markers labeled with Cy5 dye) with unlabeled DNA targets on the array (see pages 43 and 44).

Vos *et al.,* do not disclose to use different second diversity panels with different distinguished detectable molecules recited in claim 7.

Schena *et al.,* teach to hybridize two second diversity panels with different distinguished detectable molecules (ie., mRNA from control and heated treated samples labeled with Cy-5 and fluorescence-dCTP respectively) with unlabeled DNA targets on the array (see page 10615).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have hybridized two second diversity panels with different distinguished detectable molecules with unlabeled DNA targets on the array in view of prior art of Vos *et al.,* and Schena *et al.*. One having ordinary skill in the art has been motivated to modify the method of Vos *et al.,* because using two second diversity panels with different distinguished detectable molecules in the method recited in claim 7 would make more easy to one having ordinary skill in the art during the process of detecting hybridization signals due to differences in color of the fluorescence dyes. One having ordinary skill in the art at the time the invention was made would have been a reasonable expectation of success to use two second diversity panels with different distinguished detectable molecules in the method recited in claim 7.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vos *et al.,* (June 15, 2000) in view of Van Ness *et al.,* (US Patent No. 6,248, 521, priority date: July 22, 1997).

The teachings of Vos *et al.,* have been summarized previously, *supra.*

Vos *et al.,* did not disclose to amplify the first or the second diversity panel using a single primer as recited in claim 9.

Van Ness *et al.,* showed that a single primer was sufficient for generating band patterns in a number of fingerprinting methods including random amplified polymorphic DNA (RAPD), DNA amplification fingerprinting (DAF), and arbitrarily primed PCR (AP-PCR) (see column 13, second paragraph).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have amplified the first or the second diversity panel using a single primer in view of the prior art of Vos *et al.,* and Van Ness *et al.*. One having ordinary skill in the art at the time the invention was made has been motivated to modify the method of Vos *et al.,* because amplification of the first or the second diversity panel using a single primer instead of using two primers would reduce the experimental expense for synthesis of an extra primer and the simple substitution of one amplification method (ie.,using two primer in prior art of Vos *et al.,*) from another amplification method (ie.,using a single primer in patent of Van Ness *et al.,*) during the process of genotyping would have been obvious to one having ordinary skill in the art at the time the invention was made since these replacements would not change the experimental results.

Furthermore, the motivation to make the substitution cited above arises from the expectation that the prior art elements will perform their expected functions to achieve their expected results when combined for their common known purpose. Support for making the obviousness rejection comes from the M.P.E.P. at 2144.07 and 2144.09.

Also note that there is no invention involved in combining old elements is such a manner that these elements perform in combination the same function as set forth in the prior art without giving unobvious or unexpected results. *In re Rose* 220 F.2d. 459, 105 USPQ 237 (CCPA 1955).

8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vos *et al.,* (June 15, 2000).

The teachings of Vos *et al.,* have been summarized previously, *supra.* Note that genomic DNA, cDNA, structural genes, regulatory sequence and/or parts thereof could be used in the array (see page 21, lines 17-27). This suggested that parts of DNA such as DNA fragments could be used as a starting material in the method taught by Vos *et al.,* and selection of parts of DNA from whole genomic DNA or cDNA was considered as size selection as recited in claim 14.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have performed the method as recited in claim 1 using parts of DNA generated from whole genomic DNA or cDNA by one or more restriction enzymes as a starting material in view of patent of Vos *et al.*. One having ordinary skill in the art has been motivated to do so because generation of parts of DNA from whole genomic DNA or cDNA by one or more restriction enzymes was a common, easily, and routine method used in biological laboratories. One having ordinary skill in the art at the time the invention was made would have been a reasonable expectation of success to produce parts of DNA generated from whole genomic DNA or cDNA by one or more restriction enzymes.

Conclusion

9. Claims 10 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. No claim is allowed.

11. Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993)(See 37 CAR § 1.6(d)). The CM Fax Center number is either (703) 308-4242 or (703)305-3014.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank Lu, Ph.D., whose telephone number is (703) 305-1270. The examiner can normally be reached on Monday-Friday from 9 A.M. to 5 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, W. Gary Jones, can be reached on (703) 308-1152.

Any inquiry of a general nature or relating to the status of this application should be directed to the patent Analyst of the Art Unit, Ms. Chantae Dessau, whose telephone number is (703) 605-1237.

Frank Lu
February 10, 2003

Ethan Whisenant, Ph. D.
Primary Examiner (FSA)